Suisun Marsh Managed Wetland Conceptual Model

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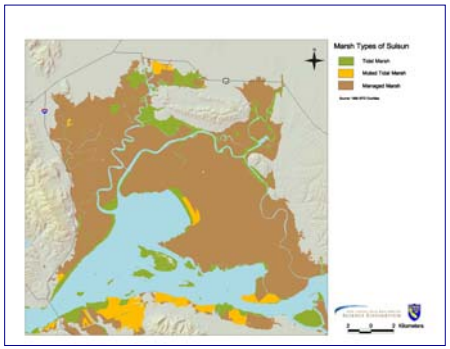
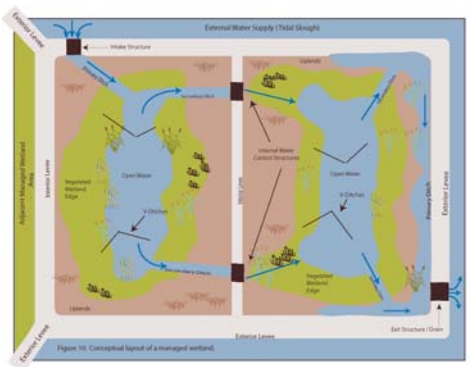
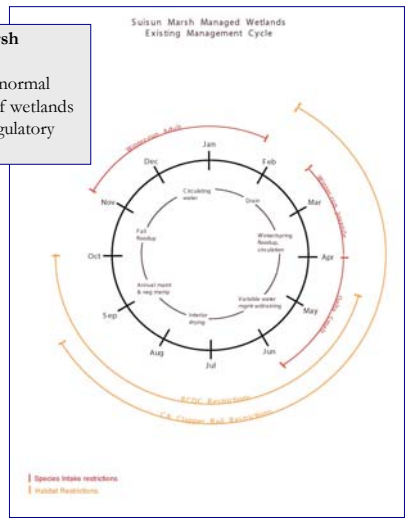
Background

At 116,000 acres, the Suisun Marsh is the largest contiguous brackish wetland in the United States. Managed seasonal wetlands are an important component of the Suisun Marsh habitat mosaic. Not only are managed wetlands important as the largest single habitat type in Suisun, but also because of their importance to the Pacific Flyway and other migratory and resident wildlife species. Suisun Marsh represents approximately 13% of California's remaining wetlands and has historically wintered up to 28% of the wintering waterfowl in California. Due to the importance of managed wetlands in Suisun, a descriptive model of existing conditions on managed wetlands was created for use in the Suisun Marsh planning process.





As depicted in the "**Suisun Marsh Managed Wetlands Existing Management Cycle**" diagram, normal management and maintenance of wetlands can potentially be affected by regulatory restrictions much of the year.



How will the conceptual model be used?

This model will serve as a description of existing baseline conditions for future actions on managed wetlands in the Suisun Marsh. This and subsequent versions of the model will provide a timeline of conditions, understanding, and progress through the implementation process. This is not a predictive model.

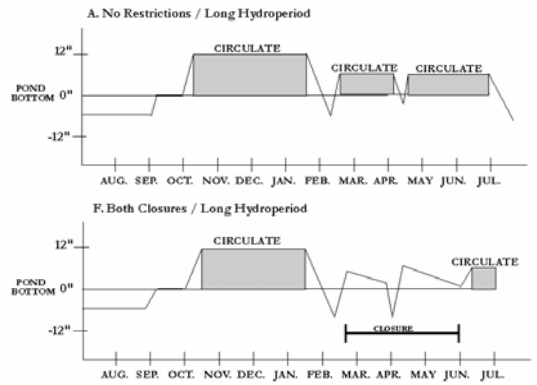
The managed wetland conceptual model will also be used for alternatives development and screening in the planning process for the Suisun Marsh Plan.

What's in the model?

The model describes physical and biological conditions specific to the Suisun Marsh and the ways these conditions affect management of wetlands. It also describes regulatory restrictions on habitat management and water intakes as well as strategies used to manage wetlands within those restrictions.

How do regulations affect water management?

As demonstrated by the figures below, species closures can greatly impact management leaving landowners to find alternate water management strategies to effectively sustain and enhance habitat on managed wetlands.



Where do we go from here?

Uncertainties and Data Gaps to be Addressed

- Effects of tidal restoration on waterfowl populations and salt marsh harvest mice
- Effects of regional habitat availability on Suisun waterfowl use
- Feasibility of increasing the carrying capacity of managed wetlands for waterfowl under current regulatory restrictions
- Effects of increasing carrying capacity for wintering waterfowl on managed wetlands to other wildlife values
- Need to quantify the current use and density of species inhabiting managed wetlands
- Impact to fish species by unscreened diversions following current diversion restrictions
- Relationship between applied water salinity and plant community composition
- Amount of subsidence and subsidence rates in Suisun
- Effects of management strategies on soil chemistry
- Leaching efficiency of applied water
- Effects of managed wetland drainage water on ambient water quality
  - -Role of managed wetlands in dissolved organic carbon and methylated mercury production
  - -Relationship between low dissolved oxygen events and management of wetlands
  - -Impacts to fish species from drainage water conditions

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